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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/886,625	06/20/2001	Ho Yin Tang	40226/DMC/B553	4370

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CHRISTIE, PARKER & HALE, LLP
350 WEST COLORADO BOULEVARD
SUITE 500
PASADENA, CA 91105

EXAMINER

RIBAR, TRAVIS B

ART UNIT	PAPER NUMBER
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1711

DATE MAILED: 02/28/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/886,625

Applicant(s)

TANG ET AL.

Examiner

Travis B Ribar

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 13 December 2002.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 5,6 and 9-34 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 5,6 and 9-34 is/are rejected.
- 7) ☒ Claim(s) 20-28 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Election/Restrictions

1. Applicant's election without traverse of claims 5-9 in Paper No. 10 is acknowledged.

Claim Interpretation

2. The examiner interprets the phrases in the present application that read, for example, "...a plasticizer between 5%-15% by volume of the polymeric compound..." (claim 5) to mean that the polymeric compound comprises 5%-15% by volume of a plasticizer. Similar interpretations are used throughout the claims.
3. The examiner interprets the phrase, "substantially most" in claims 14, 22, 31, and 34, to mean, "most".

Oath/Declaration

4. The objection to the Declaration is withdrawn.

Specification

5. The amendment filed December 13, 2002 overcomes the objection made in paragraph 13 of the office action dated June 2, 2002.

Claim Objections

6. Claims 20-27 are objected to because they are duplicates of claims 12-19, respectively. Therefore, any rejection put forth in this office action that pertains to any one of claims 12-19 will also pertain to the corresponding duplicate claim.

7. Claim 28 is objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form. As the claim is currently written, the composition already comprises micronized polyester wax.

Claim Rejections - 35 USC § 112

8. The amendment filed December 13, 2002 overcomes the rejections made under this heading in the office action dated June 2, 2002.

Claim Rejections - 35 USC § 102

9. The amendment filed December 13, 2002 renders moot the rejection made in paragraph 13 of the office action dated June 2, 2002.

Claim Rejections - 35 USC § 103

10. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

11. Claims 5-6, 9-10, and 29-34 rejected under 35 U.S.C. 103(a) as being unpatentable over van Konynenburg et al. in view of the combined teachings of Handa et al. and Frentzel et al.

Van Konynenburg et al. discloses PTC compositions that include semi-crystalline polymer (column 8, line 29), a plasticizer (column 10, lines 53-67), and conductive carbon black particles (column 6, lines 59-66) and that have a switching temperature around 70°C (see figure 3).

Regarding claims 10, 30-31, and 33-34 in the present application, where the applicant claims the use of two different types of carbon black, van Konynenburg et al. does not disclose a composition that contains two different carbon blacks. However, the method for choosing which specific carbon black is to be used in a specific composition is taught (column 6, lines 21 to column 7, line 5). Since the relevant characteristics of many different types of carbon black are listed in the reference (table 1) and since many of the carbon blacks have similar properties (e.g. types 1 and 2 in the table), it would have been obvious to one skilled in the art that a mixture of two similarly suitable carbon blacks would also produce a suitable PTC composition. In another case, it also would have been obvious to one skilled in the art to use two

different types of carbon black according to the criterion in the reference in order to tailor the properties of the resulting PTC. The amount of carbon black in the reference also meets the applicant's limitation in claim 32 (see table 3). Van Konynenburg et al. thereby meets the carbon black criterion of claims 10 and 30-34.

Van Konynenburg et al. also does not expressly teach that the amount of plasticizer in the composition should be about 10 percent of the total weight of the polymer compound. It does teach that the amount of plasticizer should be chosen based on the processing conditions that the user requires (e.g. viscosity control). Frentzel et al. discloses the use of plasticizers in PTC compositions (column 11, lines 11-22) that are in the range specified by the applicant in claims 5, 9, 10, and 29. These plasticizers are used for various purposes, including controlling the viscosity of the composition. It therefore would have been obvious to one skilled in the art to use about 10 percent plasticizer in the PTC composition in order to ease its processing.

Van Konynenburg et al., as applied above, teaches the PTC composition that the applicant claims and teaches that the composition may be used in many different applications (column 1, lines 50-65). However, van Konynenburg et al. does not explicitly include the laminate structure that the applicant claims in claim 5 or the process to produce the structure claimed in claims 9, 10, and 33-34.

Handa et al. discloses a known method for producing a PTC device (column 6, lines 34-43 and column 7, lines 4-21) according to claims 9-10 as well as the laminate structure of claim 5 (column 7, lines 4-21). The PTC device is useful in circuit protection because it protects the circuit from excess current (column 1, line 6).

At the time of the invention, it would have been obvious to a person of ordinary skill in the art to use the composition taught in van Konynenburg et al. in the laminate structure and process for producing that structure taught in Handa et al. The motivation for doing so would be to create an easily processed PTC suitable for use in as a circuit protector. It also would have been obvious to a person of ordinary skill in the art to use about 10 percent plasticizer in the inventions taught by the combined teachings of van Konynenburg et al. and Handa et al. The motivation for doing so would be to control the viscosity of the PTC composition. Therefore it would have been obvious to combine Handa et al. and Frentzel et al. with van Konynenburg et al. to obtain the invention as specified in claims 5-6, 9-10, and 29-34.

12. Claims 11-28 are rejected under 35 U.S.C. 103(a) as being unpatentable over van Konynenburg et al. in view of the combined teachings of Handa et al. and Frentzel et al. as applied to claims 5-6, 9-10, and 29-34 above, and further in view of Kuehnle.

The combination of van Konynenburg et al., Handa et al., and Frentzel et al. is discussed above, but do not explicitly state that the plasticizer in the invention is a micronized polyester wax. Handa et al. teaches that the plasticizer in PTC compositions is commonly wax (column 4, lines 4-26), but does not teach the use of micronized polyester wax (claims 11 and 28).

Kuehnle teaches that micronized wax is a good processing aid (column 2, line 10). Regarding the use of a polyester wax, in this instance the substitution of one commercially available wax plasticizer for another commercially available wax

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plasticizer does not on its own yield a product or composition patentably distinct from the prior art.

At the time of the invention, it would have been obvious to a person of ordinary skill in the art to use a micronized polyester wax in the invention taught through the combination of van Konynenburg et al., Handa et al., and Frentzel et al. The motivation for doing so would be to ease the processing conditions of the PTC composition. Therefore it would have been obvious to combine Kuehnle with van Konynenburg et al., Handa et al., and Frentzel et al. to obtain the invention as specified in claim 11.

The invention taught by the combination of van Konynenburg et al., Handa et al., and Frentzel et al. also include the limitations of claims 12-28.

Van Konynenburg et al. discloses the semicrystalline polymer of claims 12 and 20 (column 8, line 29), the carbon black limitations of claims 14-17 and 22-25 as discussed above, and the switching temperature (see figure 3) of claims 18 and 26. The amount of plasticizer in the composition, meeting claims 19 and 27, is applied here as it is applied to claims 5, 9, 10, and 29 above. When the composition includes this amount of plasticizer, the amount of polymer in the composition (table 3 in van Konynenburg et al. with the additional plasticizer taught by Handa et al. and Kuehnle) meets the applicant's requirements in claims 13 and 21.

Response to Arguments

13. The applicant argues that Handa et al. is not applicable to the present invention because it teaches away from using carbon black as a conductive filler. This is not

found persuasive because the examiner is not relying on Handa et al. to show that carbon black is a useful conductive filler.

14. The applicant argues that von Konynenburg et al. is not applicable because it does not teach the 5-15% plasticizer in the composition or the combination of two different carbon blacks. This is not persuasive because the secondary references the examiner relies upon provide the 5-15% plasticizer aspect of the invention. The combination of two carbon blacks is discussed in the above text of the rejection.

15. The applicant also argues that Frentzel et al. is not applicable to the present invention because the conductive particles in the invention are not carbon black. This is not persuasive because, like Handa et al., the examiner does not rely on Frentzel et al. to disclose the carbon black requirements of the present invention.

16. In response to applicant's arguments against the references individually, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986).

Conclusion

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17. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Travis B Ribar whose telephone number is (703) 305-3140. The examiner can normally be reached on 8:30-5:00 Monday through Friday.


If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, James Seidleck can be reached on (703) 308-2462. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9310 for regular communications and (703) 872-9311 for After Final communications.

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Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0661.

Travis B Ribar
Examiner
Art Unit 1711

TBR
February 18, 2003



James J. Seidleck
Supervisory Patent Examiner
Technology Center 1700